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A New Rhinoceros from Kansas.[1]

H. H. LANE, Department of Zoölogy.

THE Tertiary beds of North America have yielded several interesting genera of Rhinocerotidæ, among the best known of which are *Teleoceras, Aphelops* and *Peraceras* from the Upper Miocene and Lower Pliocene.

Among rhinocerotine material in the Museum of Vertebrate Paleontology at the University of Kansas, there is a practically complete lower jaw of a large individual, probably an old male, of a species not hitherto recognized. It is from the Republican river deposits near Plainville, Rooks county, Kansas, and is likely Upper Miocene, though some consider these deposits as Lower Pliocene. This specimen was obtained from a gravel pit, and was donated to the museum by Mr. Roy Dial, of Topeka.

The size and character of this mandible, together with its age and geographical location, suggested at once the probability that it belonged to one of the three genera which have been mentioned. Since there is considerable *Teleoceras* material in the museum, detailed comparison has been made with that genus.

The following generic characterizations have been drawn from the publications of Osborn and Matthew, and concern only those features which may be observed or inferred from the mandible.

PERACERAS: *Brachycephalic; occiput broad at base; upper incisors absent; premolars unreduced; molars brachyodont.*

TELEOCERAS: *Mesaticephalic; broad occiput; strong upper incisors; lower tusks curving upward; premolars reduced; molars hypsodont; symphysis short.*

APHELOPS: *Dolichocephalic; narrow occiput; upper incisors absent or weak; lower tusks heavy, procumbent; premolars unreduced; molars brachyodont; long symphysis.*

1. Paper read at the eighth annual meeting of the American Society of Mammalogists, in New York, April 29, 1926. (See Journal of Mammalogy, Vol. 7, No. 3, Aug. 1926, p. 238.)

Comparison of the specimen in hand directly with *Peraceras* is impossible, since the mandible of this genus has never been positively identified.* However, *Peraceras* is brachycephalic, and the type of *P. malacorhinus* as figured by Matthew,[2] shows that the transverse dimension of the mandible across the condyles is not less than 430 mm., whereas in the case of the specimen under consideration here the same dimension is only 306 mm. Moreover, Matthew's figure of *P. malacorhinus* shows clearly that its mandibular length could not have been over 460 mm., while in our specimen the corresponding length is 600 mm. Being 125 mm. less in width across the condyles, and about 150 mm. longer, this mandible clearly could not belong to such a brachycephalic form as *Peraceras,* but rather to a dolichocephalic genus.

Turning next to the dolichocephalic *Aphelops,* with its narrow occiput and brachyodont molars, we find in these characters suggestive resemblances, but, on the other hand, *Aphelops* has upper incisors which are weak or wanting altogether, whereas in our specimen the worn posterior faces of the tusks show that well-developed upper incisors must have been present in this species. Furthermore, while *Aphelops* has heavy tusks, in this respect like the specimen before us, they are *procumbent,* and not erect as in our specimen. However, the premolars in *Aphelops* are unreduced; they are reduced in the Rooks county form. In both cases the molars are short-crowned, or brachyodont. Then, too, in *Aphelops* the first lower molar is as long as the third, whereas in this specimen the lower molars form a graded series in which the third is the longest of all. The elongated symphysis tends to ally this mandible with that of *Aphelops;* but all in all, while clearly there are certain important resemblances, the differences are too great to allow the ascription of our specimen to the genus *Aphelops.*

There remains for consideration the genus *Teleoceras,* fortunately the best known of the three. As already indicated, this is a mesaticephalic form with a broad occiput—two characters which appear unlikely to have belonged to our specimen as judged from the size and proportions of the jaw already given. It seems to have been dolichocephalic with a narrow occiput more like that of *Aphelops.*

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* While the present paper was in press, Stock and Furlong published a description and figure of a rhinocerous jaw which they probably correctly identify as that of *Peraceras.* It agrees exactly with the conception of the jaw of this genus held by the present author, and "differs from *Aphelops* and from *Teleoceras* in the greatly shortened symphysial region and in the absence of a lower tusk" [See Chester Stock and E. L. Furlong: *New Canid and Rhinocerotid Remains from the Ricardo Pilocene of the Mohave Desert, California.* Univ. of Calif. Pubs., Bull. Dept. Geol. Sciences, vol. 16, No. 2, p. 50, and Plate 10.]

2. Hitherto Unpublished Plates: Tertiary Mammalia and Permian Vertebrata. Prepared under the direction of Edwin Drinker Cope for the U. S. Geol. Survey of the Territories with description and plates. By William Diller Matthew. 1915.

While it agrees with *Teleoceras* in having strong upper incisors, and tusks which project upward, the tusks of that genus, at least in all of the Kansas University specimens, are less heavy and are circular in outline at the level of the alveolus, whereas in this specimen the tusks are very heavy, convex on their anterior faces, and ovoid in outline on a cross section at the level of the alveolus. In both the premolars are reduced, but Osborn and Matthew regard the molars of *Teleoceras* as hypsodont,[3] whereas in our specimen they are clearly low-crowned and distinctly fanged, *i. e.*, brachyodont. Furthermore, the crown pattern of both the premolars and molars is decidedly different in the two cases, so much so that it does not seem possible to account for it either by sex, age, or degree of wear.

More directly, perhaps, comparison should be made with Hatcher's *Teleoceras major,*[4] since it is the only known species of that genus which approaches ours in size. "The type consists of a portion of the skull and lower jaw. The superior and inferior molars are preserved, and also the fourth upper premolar" (Hatcher). The two species (*aside from the generic differences already pointed out*) differ in the following particulars: The last lower molar in *T. major* "has a basal cingulum on the posterior border" (Hatcher), which is wanting in our specimen. The crown pattern of the teeth in Hatcher's species is typically teleoceran, being identical with that of *T. fossiger,* and quite different from that in our specimen. (See Pl. XXV.) The length of the ramus from its posterior margin to the anterior border of premolar four is 420 mm. in *T. major,* and 460 in the Rooks county individual, a difference of 40 mm. The height of the ascending ramus from the bottom of the angle to the condyle is 200 mm. in *T. major,* and 280 mm. in the latter form, a difference of 80 mm. The obliquity of the condylar surface in *Teleoceras major* is decidedly less than in our form, and there are significant differences in the shape of the condyle, in the postglenoid fossa, the posterior margin of the ascending ramus, etc. The length of the lower molar dentition in *T. major* is 155 mm., in our specimen 185 mm., a difference of 30 mm. The length of molar two is 54 mm. and 62 mm., respectively; of molar three, 58 mm. and 69 mm. The new form is, therefore, much larger than *Teleoceras major,* has molars two and three brachyodont, instead of hypsodont or subhypsodont (see Pl. XXIV, B), etc., and cannot be identified with that species.

3. Though both Osborn and Matthew insist that the molars in *Teleoceras* are hypsodont, the writer is convinced that they are rather to be termed *subhypsodont.* (See Pl. XXIV, B.)

4. Through the kindness of Dr. Wm. J. Sinclair, the writer has had the privilege of examining the type of *Teleoceras major* in the paleontological collection of Princeton University.

Except for the erect tusks, this specimen resembles *Aphelops* as much or indeed more than it does *Teleoceras*, but it differs in important respects from both. If one is justified in separating any of these forms from the genus *Rhinoceros*,[5] it would seem that the relationship of this specimen can best be indicated by assigning it to none of these genera. Much as one should avoid adding to the list of generic names already encumbered with synonyms and indeterminate species, I am convinced that this specimen must be assigned to a new genus. Since it seems to be somewhat nearer to *Aphelops* than to either *Teleoceras* or *Peraceras*, I propose to call it by the name *Paraphelops*.

PARAPHELOPS, genus novum.

Dolichocephalic; narrow occiput (?); dental formula, I_1, C_0, P_2, M_3. Median lower incisors wanting; lateral lower incisors a pair of large curved, erect tusks, ovoid in transverse section at base; lower canines wanting; lower premolars one and two lacking; third lower premolar decidedly smaller than the fourth, somewhat triangular in crown pattern; fourth lower premolar molariform; lower molars in graded series, first (54 mm.) shorter than the third (69 mm.), which is the longest of the series; symphysis extends posteriorly to the middle of the *fourth* premolars. Alveoli of the tusks on the sides of the rami. *Type species:*

Paraphelops rooksensis, species nova.

Type: A practically complete lower jaw with both rami intact and united at the symphysis, with the full (lower) dentition (see Pls. XXII, XXIII, and XXIV-*A*). Catalogue No. 2913, Museum of Vertebrate Paleontology, University of Kansas, of a very large individual, probably an old male. Characters of the genus as given above, and the following details:

The total length of the mandible from the anterior margin of the symphysis to the posterior border of the ascending ramus, projected upon a plane surface, is 603 mm., slightly less than that of large specimens of living *Ceratotherium simum*. (Pl. XXIII.) The body (ramus) (Pl. XXII) of this mandible is rather heavily built, its

5. Hatcher correctly remarks (Amer. Nat., Vol XXVIII, 1894, p. 245-46): "Technically, perhaps, *Teleoceras* should not be considered as generically distinguishable from *Rhinoceros*, and had it been found in Europe it would doubtless have been referred to that genus. Since, however, it is an American form, found in the same beds with *Aphelops*, its unmistakable ancestor, which as has been shown by Cope, Scott and Osborn, is quite distinct from *Rhinoceros*, I have decided to refer it to a distinct genus; believing that classification should rest so far as possible upon our knowledge of actual relations, and should be an expression of those relations, so far as they are understood, and not a mere set of conveniences, based entirely upon the presence or absence of and similarity or dissimilarity of parts."

vertical diameter below the third molar being 115 mm.; its transverse diameter at the same level 55 mm.

The anterior margin of the symphysis is slightly notched in the median line and broadly concave on its dorsal aspect (Pl. XXIII). Posterior to the tusks there is a diastema 65 mm. in its shortest length. The circumference of the jaw just posterior to the tusks is 355 mm., while the same measurement taken immediately anterior to the premolars is 370 mm. Both these planes of measurement lie between the extremities of the symphysis, which extends posteriorly from the tip of the jaw for a distance of 173 mm. to a line joining the middle points of the *fourth* premolars, whereas in *Teleoceras,* so far as I have been able to observe that genus, the symphysis reaches posteriorly to a point never back of the middle of the *third* premolars. On its dorsal aspect the symphysis in *Paraphelops* is marked by a broad but relatively shallow lingual fossa; this long symphysis is suggestive of relationship to *Aphelops.* On the ventral aspect of the symphysis in *Paraphelops,* there is a deep, rectangular excavation extending posteriorly to about the level of the hinder margin of the alveoli of the tusks; a much less marked excavation occurs in *Teleoceras.* The vertical thickness of the jaw in *Paraphelops* over this recess averages about 15 mm., while at its posterior end the symphysis has a dorso-ventral thickness of 73 mm., there being in fact a sort of mental prominence or boss on the ventral side of the jaw beneath the posterior half or so of the symphysial portion. While the symphysis in *Paraphelops rooksensis* has a length of 173 mm., that of *Teleoceras fossiger* averages about 117 mm., or 56 mm. less.

The diastema in *Paraphelops rooksensis* (Pls. XXII and XXIII) is marked on its mesodorsal surface by a ridge which extends mesad from the anterior margin of the alveolus of the third premolar to a point somewhat mesad of the inner line of the cheek teeth, whence it turns sharply forward, and somewhat obliquely laterad, to a point 35 mm. posterior to the alveolus of the tusk. Here it turns outward and downward, making practically a right angle to its previous course, though the apex of this angle itself is rounded. After extending for about 25 mm. downward from this angle, the ridge fades away into the outer side of the jaw about 17 mm. posterior to the alveolus of the tusk. The mesial surface of this ridge slopes sharply downward, forming a portion of the lateral wall of the lingual fossa. Externally, *i. e.,* laterally, the surface of this ridge is very steep, in fact, concave in form, with an average height of about 10 mm., though immediately in front of the premolars it is approximately 20

mm. in height. The width of the mandible, measured at the level of the right angle of these ridges, is 70 mm.

On the outer (lateral) aspect of the jaw the ascending ramus arises at a point 48 mm. posterior to the last molar, while on the mesial aspect it begins to rise 30 mm. back of that molar. The anterior margin of the ascending ramus at its base is 51 mm. wide, and it tapers irregularly dorsad until at a point 128 mm. above its base it is compressed abruptly into the thin coronoid process. The posterior margin of the ascending ramus is only slightly reflected on the mesial side and reaches its greatest thickness (76 mm.) across the postcotyloid process (Pl. XXIV-*A*). The angular margin of the jaw is rather evenly convex in outline and extends as a corrugated ridge from a point 90 mm. posterior to the level of the last molar to a point 180 mm. up on the posterior margin of the ascending ramus (Pl. XXII).

The bottom of the mandibular notch is 268 mm. above the level of the ventral face of the jaw. The coronoid process rises 61 mm. above the bottom of the notch with a very sharp, slightly concave slope, while its anterior margin is strongly convex. The width of the coronoid process at the level of the bottom of the mandibular notch is 76 mm., and its greatest thickness at the same level is 19 mm.

The lateral surface of the ascending ramus is marked by two concavities, the somewhat larger lower one (for the attachment of the masseter muscle) being separated from the somewhat smaller one above (? for the attachment of the temporalis) by a low irregular diagonal ridge running from the neck of the condyle downward and forward toward the point where the ramus begins its ascent, back of the last molar. The angular margin of the masseterial concavity is marked by several vertical corrugations (Pl. XXII).

The articulation of the lower jaw in this, as in all other species of Rhinocerotidæ, is peculiar and unlike that found in other mammals. There is no glenoid fossa, strictly speaking, but instead the under surface of the zygomatic process of the squamosal is in the form of a semicylindrical rod—not concave as in other mammals. In *Paraphelops* the postglenoid process of the squamosal must have been a much stouter spike than that found in the related genera, if one may judge from the shape and size of the notch into which it is fitted. This notch is mesad to a large bony mass (the *postcotyloid process*) which lies behind the condyle proper, at the upper end of the thickened posterior margin of the ascending ramus. The postcotyloid process in *Paraphelops* is a much larger and more prominent mass

than in *Teleoceras* or *Aphelops* (Pls. XXIV-*A* and XXV). It is in fact considerably larger than the condyle proper, of which it is really a part but marked off by a transverse groove.

The condyle proper forms a ridge 130 mm. long extending transversely across the upper margin of the ascending ramus. It consists of two distinct portions, an external or lateral subovate condyle, which forms the principal part of the articulation, 67 mm. in length, and a mesial extension in the form of a rodlike ridge, 64 mm. long, which expands at its mesial end into a convexly flaring liplike process running ventrad for 43 mm. The condyle proper is separated by a groove, 14 mm. wide at its narrowest point, from the postcotyloid process. This groove fades out posterolaterally over the exterodorsal surface of the postcotyloid process, while mesially it broadens and deepens, and turns ventrad along the mesial face of the postcotyloid process and the posterior margin of the ascending ramus. This descending portion of this groove, which served for the reception of the very large postglenoid process, has a maximum width of 52 mm. and a maximum depth of 33 mm. on its lateral wall (postcotyloid process), and of 14 mm. on its mesial (condylar) wall. Its outer (lateral) wall rises almost perpendicularly, while its inner (mesial) wall forms a gentle slope (Pl. XXIII and XXIV-*A*).

The mesial face of the angle and of the ascending ramus is deeply hollowed out, its surface being irregularly corrugated for the attachment of the pterygoideus internus muscle. The posterior margin of the ascending ramus is slightly reflected mesad (Pl. XXIV-*A*) and grows broader as it rises toward the neck and the postcotyloid process. The transverse dimension of the jaw across the condyles is 306 mm., while the posterior reflected margins of the ascending rami are only 217 mm. apart.

Dentition: While we have identified the tusks as lateral incisors, according to Osborn's interpretation they are canines and both pairs of the lower incisors are wanting in this specimen, there being no trace of incisival alveoli in the unbroken end of the mandible. However, the tusks are often identified by other authors as lateral incisors, the interpretation followed in this paper. They are ovoid in cross section at the base, with the mesially directed portion of the oval decidedly sharper, or more nearly pointed, than the outer. In this respect these tusks are notably different from those of *Teleoceras,* in which the transverse section of the tusks is circular. The tusks, in both *Paraphelops* and *Teleoceras,* are sharp-pointed and worn flat on the posterointernal surface. In *Paraphelops,* this worn face of the tusk (Pl. XXIII) extends downward for a distance of

98 mm. from the tip, and, while a plane surface distally, becomes decidedly concave near its lower end where it is bounded by the sharply transverse margin of the unworn portion of the tooth below. The base of the tusk up to about the lower margin of the worn surface is covered with enamel; distad to that level the enamel is wanting. The tusks measure 132 mm. in greatest length, *i. e.*, along the exterolateral convexity, from the margin of the alveolus to their tips. Their circumference, taken at right angles to their longitudinal axis and at the upper (mesial) margin of the alveolus, is 150 mm. The anterior surface of the tusks is decidedly convex and rises to the tip, which is about 35° from the vertical, *i. e.*, the tusks are more nearly vertical even than in *Teleoceras*, where their inclination is about 60°, and far from procumbent as in *Aphelops*.

The alveoli of the tusks in *Paraphelops* lie on the sides of the mandibular rami (Pl. XXII), instead of being terminal or on the dorsal surface as in *Teleoceras* and *Aphelops*. They are ovoid, in fact almost triangular, in outline, instead of circular as in *Teleoceras*. The distance between the alveoli of the tusks across the upper surface of the mandibular symphysis is 60 mm. at their nearest points. The posterolateral extremity of the alveolus is 55 mm. posterior to its anteromesial corner. The total circumference of the margin of the alveolus is 165 mm.

There are but two premolars present, the third and fourth of the series, and there is no indication whatever of the former presence of the first or second. The third premolar is smaller than the fourth, and has an extreme length of 40 mm., and its greatest breadth, near its hinder end, is 30 mm. In the crown view (Pl. XXIII) it is rather arrowhead-shaped, with a convex anterior margin and a concave posterior. The enamel is wanting over the whole posterior surface of the tooth. On the median face there are two reëntrant angles or folds of enamel, the valleys or fossettes of the metalophid and hypolophid, respectively. The anterior one, or prefossette, is very shallow, a mere notch; the posterior valley, or postfossette, is somewhat deeper. The two lophids are separated on the lateral surface of the tooth by a median, broad and shallow, *i. e.*, very obtuse, reëntrant angle, the apex of which is slightly posterior to the middle of the tooth. This tooth, like all the others in the molar series, is brachyodont, and its fangs rest in a projecting shelf on the side of the jaw.

The fourth premolar (Pl. XXIII) is decidedly larger than the third and is molariform. Its greatest crown length is 50 mm.; its

greatest breadth, across the hypolophid, is 42 mm. As in the other teeth of the molar series, its mesial surface is marked by two reëntrant folds of enamel, the prefossette and postfossette, the former extending about 8 mm. and the latter about 15 mm. into the area of the tooth. The prefossette is about as deep as the postfossette of the third premolar, but the angle is not nearly so acute. The prefossette is almost vertical, while the postfossette is decidedly inclined, particularly toward the mesial margin of the tooth. The external or lateral surface of this tooth consists of two broad vertical pillars, the metalophid and hypolophid, the former the broader, and the two are separated by an obtuse reëntrant angle. The anterior margin of this tooth is enameled and gently convex; the posterior margin is partly without enamel and gently concave.

The first molar (M_1) has an extreme length of 54 mm.; its greatest breadth, 38 mm. The prefossette is very shallow, not so large as that in the third premolar. The postfossette in the first molar is very narrow; in fact, its sides are in contact for the greater part of its length, approximately 10 mm., the line of contact running obliquely posteromesad and dropping down over the mesial surface of the tooth toward the middle of the posterior fang. The anterior face of this tooth is irregularly convex; the posterior slightly concave or nearly plane. The external (lateral) surface of this tooth is marked by a reëntrant fold of enamel, which at the crown forms nearly or quite a right angle. The metalophid, unlike that of the premolar, is only about two-thirds as broad as the hypolophid, *i. e.*, 22:32 mm., respectively. In the fourth premolar these dimensions are 25:23 mm. (Pl. XXIII).

The second molar (Pl. XXIII) is larger than the first, having an extreme length of 65 mm. and an extreme width (hypolophid) of 38 mm. The corresponding tooth in *Teleoceras fossiger* (Pl. XXIV) averages about 61 x 33 mm. The third molar is larger still, being 69 x 38 mm. This gradation in the size of the molars is a generic character that distinguishes *Paraphelops* from *Aphelops*. The description of the first molar, disregarding size, applies very well to both the second and third molars, except that they are faced with enamel all around, and their posterior faces are not concave. In the second the posterior face is practically plane, while in the third it is obliquely convex, the obliquity forming the posteroexternal surface of the tooth. The crown pattern in all of these teeth shows a gradual change from the arrowhead of the third premolar to a W in the third molar, the intermediate teeth showing the transition

stages between these two extremes. *All of the molars are brachyodont.*

The total length of the premolar-molar series, at the margin of the alveoli, is 260 mm.; this is identical with the same dimension in the American Museum specimen of *Teleoceras fossiger* as reported by Osborn (Pl. XXIV-*A*). While Osborn gives the width of the skull across the arches in his *T. fossiger* as 380 mm., in *Paraphelops rooksensis* it is approximately 306 mm.; in total length of jaw, Osborn records 510 mm., whereas in our species it is 635 mm. *Paraphelops,* therefore, must have been dolichocephalic, and not mesaticephalic as was *Teleoceras.*

A few instructive comparisons may be made between *Paraphelops rooksensis* and the mounted specimens of *Teleoceras fossiger* in (*a*) the American Museum of Natural History and (*b*) the Museum of the University of Kansas:

Species	*T. fossiger.*		*P. rooksensis.*
Specimen at	American Museum of Natural History.	Museum of the University of Kansas.	
	mm.	mm.	mm.
Skull width across zygomatic arches (6)	383	.....	306(7)
Length of jaw, condyle to tip of tusk (straight line)	510	.....	635
Teeth, grinding series	260	.....	260
Dentition to tip of tusk	350	.....	395
Length of condyle (transverse)	.....	116	131
Length of symphysis	.....	116	173
Width of postcotyloid process	.....	128	160
Height of postcotyloid process	.....	73	93
Distance from M_3 to mesial end of condyle	.....	186	227
Distance from M_3 to posterior margin of ascending ramus	.....	167	220
Width of ascending ramus at postcotyloid process	.....	128	160
Length of diastema	.....	.....	65
Transverse distance between PM_3's	.....	.....	73
Transverse distance between hypolophids of M_3	.....	.....	90
Transverse distance between tusks	.....	.....	62

(6) In other words, in Osborn's specimen the width of the mandible across the condyles (Approx. = width across zygomatic arches) is approximately 74½ per cent of the total length of the mandible; while in *Paraphelops* this relation is approximately only 47½ per cent. *Paraphelops*, therefore, belongs to a relatively longer-headed species than *T. fossiger.*

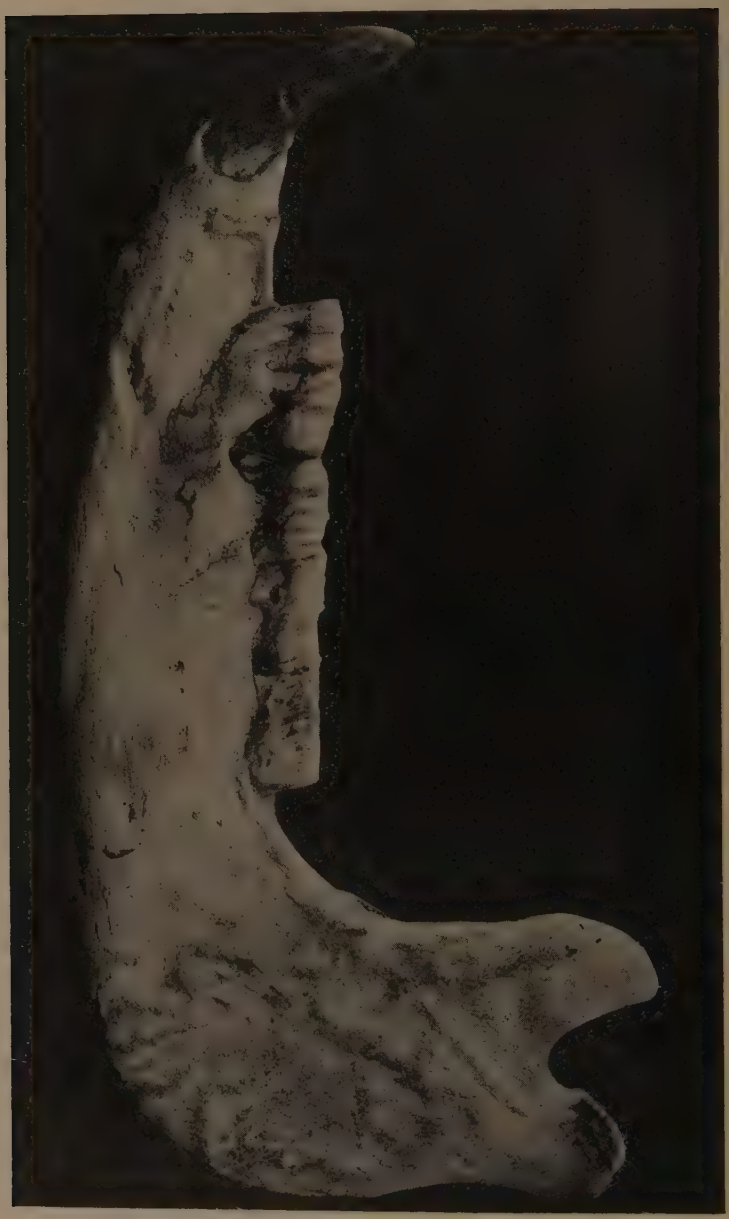
(7) Estimated.

Through the kindness of the authorities of the American Museum of Natural History the writer has had the privilege of examining, among other rhinocerotine material in that institution, specimen No. 10878, which Osborn (New Miocene Rhinoceroses with Revision of Known Species, Bull. Amer. Mus. Nat. Hist., Vol. 20, 1904) has provisionally assigned to *Peraceras superciliosus* Cope. He says (p. 312-13): "Jaws (Amer. Mus., No. 10878) found in the same region . . . ['Loup Fork, So. Dak., N. E. Rosebud Agency, White River Country'—label, Am. M. N. H.] possibly belong to

this species; as compared with those of *T. fossiger,* they exhibit (1) large canines, (2) a wide space between M_3 and the coronoid process, (3) forward pitch or inclination of the condyle and coronoid region, (4) somewhat less hypsodont molars."

Examination of this specimen has convinced me that it belongs to our species *Paraphelops rooksensis.* The variations between it and the type as described are such as would indicate sex differences. No. 10878 in the American Museum is most probably the *female* of this species, and not a *Peraceras* as Osborn was inclined to regard it. Its presence in the Loup Fork would tend to fix the deposit in which the Rooks county specimen was found as Upper Miocene rather than Lower Pliocene.

PLATE XXII.

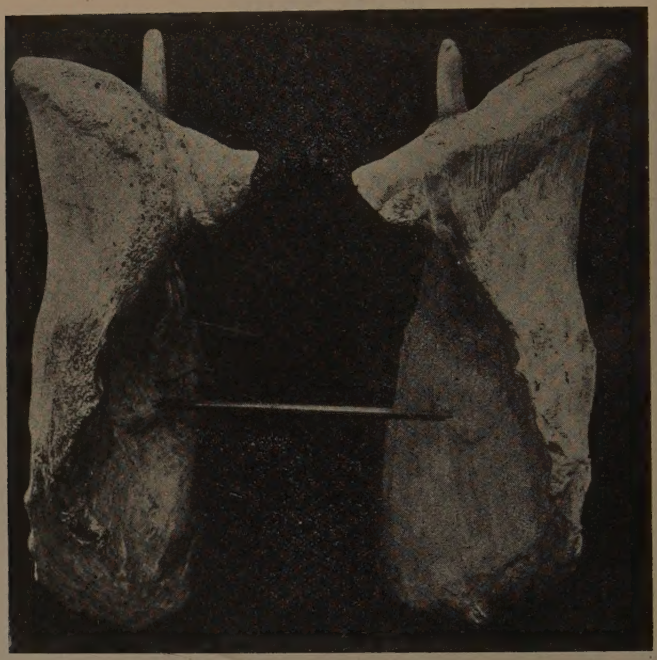


Lateral aspect of the mandible of *Paraphelops rooksensis* type.

PLATE XXIII.

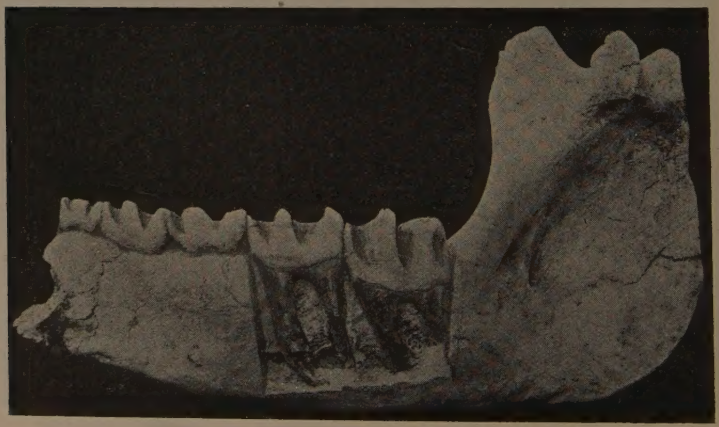
Crown view of the same, showing length of symphysis, tooth pattern, etc.

PLATE XXIV-*A*.



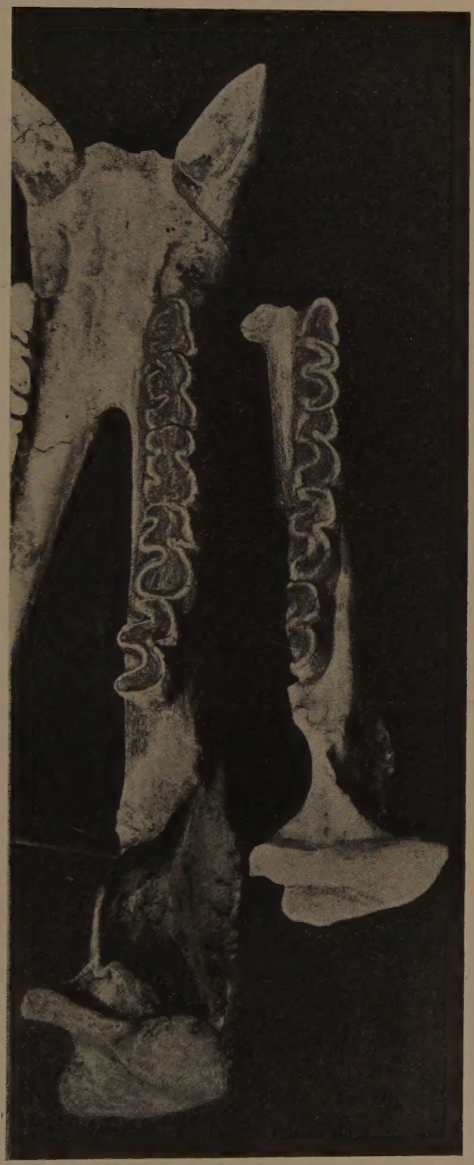
Posterior aspect of the same, showing obliquity of the condyle, massiveness of the postcotyloid process, reflected margin of the ascending ramus, and tips of the coronoid processes.

PLATE XXIV-*B*.



Median aspect of the mandible of *Teleoceras fossiger* with a portion removed to show the full extent and character of M_2 and M_3—*subhypsodont* instead of hypsodont as usually described.

PLATE XXV.



Comparison of tooth pattern, size, etc., in *Paraphelops rooksensis* (left) and *Teleoceras fossiger* (right). Note the nearly equal length of the tooth row in the two cases; that the symphysis extends posteriorly in *Paraphelops* to a point opposite the middle of P_4, while in *Teleoceras* it ends opposite the middle of P_3. (The apparent position in the figure is due to angle at which the photograph was taken.) Note, also, the *greater* distance between M_3 and the ascending ramus (coronoid process) in *Paraphelops* than in *Teleoceras*. Note, too, the difference in the shape, size and proportions of the condyle and postcotyloid process in the two genera.